Solutia Inc.
575 Maryville Centre Drive
St. Louis, Missouri 63141

P.O. Box 66760
St. Louis, Missouri 63166-6760
Tel: 314-674-1000

October 24, 2003

Mr. Nabil S. Fayoumi
U. S. Environmental Protection Agency - Region 5
Superfund Division
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

Re: Box Culvert Options
Slurry Wall Excavation, Sauget Area 2, Sauget, Illinois

Dear Mr. Fayoumi:

This letter is in response to EPA's request that Solutia submit a technical memorandum describing the options to prevent any potential leakage of groundwater from behind the slurry wall into the box culvert from reaching the river. It must be noted that the box culvert is owned by the Village of Sauget. Any actions taken with regard to the box culvert must be approved by the Village.

Background

An existing box culvert, owned by the Village of Sauget, will penetrate the slurry wall. It was always Solutia's intent to dig around it and leave it in place. The box culvert is shown on the drawings in the Final Design Submittal on Sheet Nos. 2-03, 2-04, 2-05 and 2-06 approved by the Agency. It was also shown on these drawings in the January 17, 2003 Pre-Final Design Submittal. EPA/IEPA recently expressed concern about the penetration of the slurry wall.

"Seepage from the outside of the box culvert was sampled and analyzed as part of the Sauget Area 2 RI/FS Support Sampling Plan. Analytical results indicate that VOCs (963.1 ppb), SVOCs (7,289.0 ppb), Pesticides (1.06 ppb), Herbicides (172.4 ppb) and PCBs (0.2 ppb) are present in this seepage. During the start of work to install a steel plate over the end of the box culvert, PID readings inside the culvert were zero and no odors were detected. This evidence indicates that the interior of the box culvert is not a migration pathway and that there is no need to plug it to prevent migration. However, earlier this week IEPA and American Bottoms took samples of water flowing out of the box culvert. A light sheen and light odor were detected and PID readings were 0.3 ppm. Solutia will also obtain a sample to determine if this water contains any constituents of

concern. It is believed that the water is coming from storm drains that are partially plugged and continue to seep water that has collected from upgradient areas.

Installation of the slurry wall around the box culvert will prevent migration of groundwater in the backfill around the outside of the box culvert by the same mechanisms that the slurry wall will prevent the down gradient migration of impacted groundwater. These mechanisms are formation of a low-permeability filter cake on the walls of the slurry trench and placement of a low-permeability backfill in the slurry trench. Installation of the slurry wall around the box culvert will create an effective seal that prevents migration of groundwater in the backfill around the box culvert.

Contrary to our understanding during design of the slurry wall, the box culvert is an active storm drain. Consequently, it is not practical to permanently plug or cut the box culvert. This information was obtained from George Schillinger of the American Bottoms Regional Wastewater Treatment Facility (ABRWTF) when discussing access for installation of the slurry wall. Stormwater from catch basins on Pitzman Avenue and Riverview Avenue drains into the box culvert. Blocking or cutting the box culvert will cause localized flooding on these two streets. Pitzman Avenue is heavily traveled by trucks and localized flooding will create unsafe traffic conditions. Alternatives for stormwater control would be required as well as approval from American Bottoms before any permanent modifications could be made to the box culvert.

Several options for addressing the concerns raised by the Agency are outlined below, including plugging the box culvert. Only the first option below has been approved by ABRWTF.

- **Plug Outlet only during construction**

  This is the original plan. The discharge end of the box culvert will be closed with a steel plate containing two six inch outlets. These outlets have long hoses attached so that the outlet elevation may be raised above ground level to prevent discharge as desired. During slurry wall construction around the box culvert the hoses will be raised to prevent any discharge in case the box culvert was to rupture. The box culvert will continue to exist as it does today and the owner, ABRWTF, will continue to be responsible for it.

- **Control Flow into and out of the box culvert**

  As above, the discharge end of the box culvert will be closed with a steel plate containing two six inch outlets. These outlets have long hoses attached so that the outlet elevation may be raised above ground level to prevent discharge as desired. This option would allow collecting water in the box culvert and sampling before release. There are two known street drains that empty into the box culvert. These drains could remain active or could be plugged and water could be rerouted to surface runoff. The box culvert will continue to exist as it does today and the owner, American Bottoms Regional Wastewater Treatment Facility, will continue to be responsible for it.

- **Stop Flow**

  This option would plug the street drains and permanently seal the discharge to the river with the steel plate. After eliminating known flow into and out of the box culvert, any accumulated water level could be monitored. If more than 2 feet of water accumulated it could be pumped to the ABRWTF. The box culvert will continue to exist as it does today.

- **Plug the box culvert**

  It may be possible to plug the box culvert on each side of the slurry wall and then remove the section that would have passed through the slurry wall. This would provide continuity of the slurry wall along the south wall, but would allow accumulation of water in the box culvert with no outlet. The removal would be a dangerous and difficult activity and is not recommended.

If you have any questions, please call me.

Sincerely,

Solutia Inc.

Gary W. Vandiver
Project Coordinator

cc. Sandra Bron - IEPA
Linda Tape - Husch & Eppenberger
Mike Coffey - USF&W
Tim Gouger – USACE
Peter Barrett – CH2M Hill
Steven Acree – USEPA
Ken Bardo - USEPA
Richard Williams - Solutia
Bruce Yare – Solutia
Cathy Bumb - Solutia